

### **ABSTRACT OF THE DISCLOSURE**

LDPC (Low Density Parity Check) coded modulation symbol decoding. Symbol decoding is supported by appropriately modifying an LDPC tripartite graph to eliminate the bit nodes thereby generating an LDPC bipartite graph (such that symbol nodes are  
5 appropriately mapped directly to check nodes thereby obviating the bit nodes). The edges that communicatively couple the symbol nodes to the check nodes are labeled appropriately to support symbol decoding of the LDPC coded modulation signal. The iterative decoding processing may involve updating the check nodes as well as estimating the symbol sequence and updating the symbol nodes. In some embodiments, an  
10 alternative hybrid decoding approach may be performed such that a combination of bit level and symbol level decoding is performed. This LDPC symbol decoding outperforms bit decoding only. In addition, it provides comparable or better performance of bit decoding involving iterative updating of the associated metrics.